

HAMILTON TRADE CENTRE AND ARENA

HAMILTON, ONTARIO

16 DECEMBER 1982

FINAL DESIGN COST ESTIMATE

URBAN DOCUMENTATION CENTRE
RESEARCH UNIT FOR URBAN STUDIES
McMASTER UNIVERSITY
HAMILTON, ONTARIO

Parkin Partnership

005466

PARKIN PARTNERSHIP ARCHITECTS PLANNERS
- ARCHITECTS

PARKIN ENGINEERS LIMITED/CARRUTHERS & WALLACE LIMITED
- STRUCTURAL ENGINEERS

H.H. ANGUS LIMITED
- MECHANICAL AND ELECTRICAL ENGINEERS

WOODCLIFF CONSTRUCTION CONSULTANTS
- COST CONTROL CONSULTANTS

PROJECT NO. 8207

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GENERAL

General

The Final Design Estimate was completed on 01 November, 1982 and has been prepared based on the following drawings dated 15 September 1982.

<u>Drawing</u>	<u>Title</u>
DE-C101A	Rink/Exhibition Hall Level Plan
DE-C102	Street/Mall Level Plan
DE-C103	Concourse/Plaza Plan
DE-C104	Mezzanine Level Plan
DE-C105	Sections

In addition Structural, Mechanical and Electrical design drawings were used in the preparation of the relevant trade cost figures.

Design work as reflected in the drawings dated 15 December 1982, has continued on the project since the estimate was prepared. These changes have been discussed with the Cost Consultants and it is their opinion that they can be achieved within the overall design contingency established for this purpose.

The specific items reflecting these changes will be identified in the first estimate in Phase III of the project, work on which is currently underway.

As before, the pricing level used in the estimate assumes an April 1983 tender call and reflects anticipated tender levels at that time for a stipulated sum contract of approximately 20-22 months duration. No allowance is made for post-contract contingencies.

BASIC EXCLUSIONS

Basic Exclusions

1. Land acquisition costs
2. Interim financing.
3. Legal fees
4. Tenant improvement to Concessions, Restaurant and Retail Areas (Counters and rolling grills to concessions have been included in estimate).
5. Finishes to Home Team Office.
6. Dark Room equipment.
7. Laundry equipment.
8. Training equipment and weights.
9. Theatrical lighting and dimming system.
10. Equipment for events other than hockey (i.e. running boards, athletic mats, pits, basketball hoops., etc.).
11. Operating supplies (e.g. filing cabinets, cash registers, typewriters stationery, interior plants, planters, etc.)
12. Electric organ.
13. Out-of-town scoreboard.
14. Medical and First Aid supplies and equipment.
15. Artwork
16. All new construction to adjacent properties.

Basic Exclusions
(continued)

17. Sewer Impost Tax
18. Doors and entrances to adjacent properties.
19. Special facilities for Press Play Back and Recording Rooms.
20. Home Team Offices - floor finishes, interior partitions and doors.
21. Private Boxes except for mechanical and electrical rough-in.

OUTLINE SPECIFICATION

EXCAVATION

- Clearance of site surface.
- Bulk excavation to reduce levels.
- Excavation for rink slab component.
- Excavation for footings/pits/trenches.
- Hand trimming of excavations.
- Weeping tile system at + 30'-0" centres in one direction.
- Granular backfilling to substructure.

DEWATERING

- Allowance for removal of water by means of pumps during construction.

STANDARD STRIP FOOTINGS

- 20 MPa reinforced concrete strip footings to concrete foundation walls.
- PVC waterstop in all exterior strip footings.
- 20 MPa reinforced concrete strip footings to concrete block walls.

STANDARD COLUMN FOOTINGS

- 20 MPa reinforced concrete in column footings and caps.

SPECIAL FOUNDATIONS

- Underpinning of + 250 lineal feet of adjacent property foundations, minimum 4'-0", maximum 8'-0" deep.
- Piling and lagging to + 794 lineal feet of excavation on the north and west sides.
- 20MPa concrete in caissons of 30" and 36" diameter + 55'-0" deep to underside of columns.

WALLS BELOW SLAB ON GRADE AND EXTERIOR FOUNDATION WALLS

- 20 MPa reinforced concrete in foundation walls
- Membrane waterproofing and protection board.
- Rigid insulation 6'-0" deep.

SLAB ON GRADE

- 25 MPa reinforced slab on grade to truck ramp, with traffic topping, vapour barrier and base.
- 25 MPa reinforced slab on grade to building with vapour barrier and base.
- 25 MPa reinforced slab on grade to rink poured in maximum 12'-0" wide panels in continuous pour, with high density (60 p.s.i.) rigid insulation, 4" thick, and bed and stone base.
- Concrete pits, trenches and depressions.

FLOOR FRAME

- 30 MPa reinforced concrete columns, slabs, beams and stepped slabs.

ROOF FRAME

- 30 MPa reinforced concrete columns and slabs to low roofs
- High roof comprises two-way steel tied-arch truss system supported on 30 MPa reinforced concrete perimeter columns.
- Steel trusses covered with 3" thick acoustic steel deck.
- Epoxy-ester prime coat shop-applied to steel trusses, 1 to 1.5 mils thick.
- 1 coat catalysed epoxy CC25 field-applied finish paint to steel trusses.

ROOF COVERING

- Insulated single membrane roofing to high roof, Sarnafil or equal.
- Inverted roofing system to low roofs, 15 #/S.F. ballast and precast perimeter pavers.
- Prefinished aluminum flashings. Double glazed aluminum framed skylight window sill wall to S.E. corner over ticket office.
- Roof access hatches.

EXTERNAL WALLS

- Allowances included to permit use of face brick or precast concrete walls to ramps. Arena walls, columns and recess to be steel clad with insulated backing.
- Allowance for chimney exhaust from cooling towers.

EXTERNAL DOORS AND SCREENS

- Glazed hollow metal entrance doors, paint finish with panic hardware.
- Unglazed hollow metal exit doors, paint finish with panic hardware.
- Electrically operated overhead doors and frames

EXTERNAL WINDOWS

- Double glazed, hermetically sealed, thermally broken, prefinished aluminum windows to selected areas only at street level.

BALCONIES AND PROJECTIONS

- None

EXTERNAL SOFFITS

- 2" Rigid insulation, mechanically fastened to concrete slab over ramp and vehicle holding area. Exposed perimeter to have exterior quality linear metal ceiling with drywall and insulation above.

SOLID PARTITIONS

- Generally 6" & 8" concrete block throughout.
- Block veneer facing to concrete walls in truck ramp.
- Reinforced concrete walls where essential.

FRAMED PARTITIONS

- Steel studs to walls around private boxes.

GLASS PARTITIONS

- None

INTERNAL DOORS

- Hollow metal doors and frames, minimal glazed doors.
- Dark Room doors.

- Roller shutter door to ticket office. Rolling grills to concessions.

INTERNAL SCREENS

- Floor-mounted metal toilet partitions.
- Hollow metal glazed screens at restaurant entrances and advanced ticket office.

- Hollow metal glazed screens with opening casements, laminated glass in front of private boxes.

STAIRS

- 25 MPa reinforced concrete steps and stairs with paint-finish steel handrails.

- Catwalk to roof truss system, paint finish.

ELEVATORS

- Handicap and V.I.P. passenger 150 f.p.m., 2500 # capacity, two in-line openings and one rear opening, carpet finish to walls and floor, centre opening doors and controls etc., to suit handicapped persons.

- Freight elevator Class C1, 15,000 # capacity, platform size 9'-0" x 20'-0" overall, 50 f.p.m., inside clear height 8'-0", power assisted door operators.

ESCALATORS

- Eight escalators, four @ 32" wide, 16'-0" vertical rise, four @ 48" wide, 14'9" rise, stainless steel finish.

FLOOR FINISHES

- Sealed concrete finish in seating areas with light grit application.
- Traffic topping to truck ramp.
- Steel trowelled concrete finish to retail and restaurant areas.
- Utility carpet to interview, press, ushers and ticket office.
- Quality carpet to bar and administration area.
- Resilient, skate-resistant floor covering to locker rooms.
- Non-slip epoxy paint to showers.
- Metal grids at entrances.
- Non-metallic hardened concrete finish to all other areas.

CEILING FINISHES

- Suspended acoustic tile ceilings in locker rooms, dark rooms, interview, press and ushers' rooms, ticket office and administration offices.
- Linear metal strip ceiling in main entrance vestibules.
- Quality ceiling in bar.
- Suspended drywall with epoxy paint finish in showers.
- Exposed structure in all other areas with painted ductwork etc., in public areas.

WALL FINISHES

- Painted drywall in administration offices, private boxes, bar and V.I.P.
- Painted concrete block in press, ushers, interview, ticket, and locker rooms.
- Epoxy paint on block walls in showers, washrooms and dark rooms.
- All other walls exposed concrete or concrete block.
- Allowance included for acoustic treatment.
- Sprayed acoustic insulation 1" thick applied to internal perimeter of Arena at upper level.

**FITTINGS, FURNISHINGS AND
EQUIPMENT**

- Washroom accessories
- Sink and drugs cupboard to first aid room.
- Lockers for officials.
- Locker enclosures for players.
- Vanity shelves to women's washroom and vanities to locker rooms.
- Sinks, counter tops and cupboards in dark rooms.
- Stainless steel mirrors, grab bars, hot-air hand dryers to public washrooms (no vanities).
- Bar fitments complete.
- Sink, back and front counters and crowd control rails to concessions.
- Counter top, cupboards, drawers, pigeon holes in ticket office
- Sundry shelving.
- Desks, chairs and credenzas to administration, tickets, V.I.P., interview and officials rooms.
- Nylon fabric top quality arena seating (15,550 fixed, 2,450 movable).
- One 150 cu.ft. capacity ice resurfacing machine.
- 2,000 portable chairs for use in the area of the ice rink.
- Portable platform stage.
- Signs and graphics.
- Garbage Chute.
- Garbage Compactor.
- Press area writing tables and glass screens.
- Chalk and tack boards.
- Dasher Boards and ancillaries.
- Blinds to exterior windows.
- Basic electronic scoreboard.
- Safe.
- Turnstyles.
- Saunas/Whirlpools.
- Fork-lift truck and dolly.

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MECHANICAL SYSTEMS

- The building air conditioning system has a capacity of some 1,800 tons of cooling and produces + 800,000 c.f.m. of air.
- Air conditioning plant comprises four central systems of chillers, located in equipment rooms, 4 cooling towers and associated chilled and condenser water pumps.
- Chilled water is distributed to cooling coils and fan coil units located in air-handling units at roof level mechanical rooms and to cooling coils in air-handling units on lower floors as required for localized air-conditioned areas.
- Chilled water piping is provided to retail areas and concessions, valved and capped for tenant extension.
- Heat will be rejected to the atmosphere via cooling towers located in four mechanical rooms. Exhaust fans will provide ventilation of the area.
- Heat will be reclaimed where possible from the heat rejected from the rink refrigeration plant. Heating boilers have been included to supplement the heat reclaim system and to provide heat when the plant is inoperative. These units will also provide for humidification and domestic hot water heating.
- Hot and cold supply piping and waste piping have been roughed-in to the private boxes.
- Prime quality plumbing fixtures and fittings have been included to above Ontario Building Code requirements. These fixtures, as well as floor drains, will be connected to a sanitary drainage system to the City street sewer.
- Storm drainage piping system has been provided to drain roofs and exterior areas. A duplex pump set has been included to pump storm water from low areas to drain. Weeping tile pump sets have also been included. Drains will be connected to the City street sewer.
- The building is fully sprinklered.
- Complete systems of domestic hot and cold water piping have been included to serve plumbing fixtures and fittings. Capped and valved connections will be terminated at concession and retail areas for extension by tenant.
- The ice rink refrigeration plant (330 tons of cooling) comprises brine chillers sized for 2/3 and 1/3 of the load respectively, and associated dry coolers for heat rejection with brine pumping and piping system to concrete-encased grid pipes in rink. Brine solution is ethylene glycol.

ELECTRICAL SYSTEMS

- High voltage incoming service, switchgear and cabling.
- Two 3,000 KVA transformers.
- Low voltage switchgear, one main 600 volt switchboard, one 600/208V switchboard with transformer and one 2,000 amp 120/208V switchboard.
- Low voltage feeders and 600V distribution panels
- One 300 KW standby diesel generator, emergency lighting and power
- Fluorescent and metal halide lighting
- Devices and branch wiring
- Fire alarm and voice communication system
- P.A. system in arena with selected microphone outlets.
- Empty conduit for telephone system
- Central control for arena lighting
- Power wiring for mechanical equipment
- Heating cables under rink
- Wiring and connections to building systems control
- Empty conduits for goal lights and local intercom system.
- Wiring and connections to arena seat lighting
- Portable transformers and load centres.
- Lighting fixtures for boxing/wrestling events
- Exterior lighting.
- Lighting protection system.
- Cable tray system for T.V. and radio cables.

ALLOWANCES

Allowances for:

- Multi-purpose, insulated, removable floor.
- Heavy duty, durable hardware to doors
- Tests and Inspections
- Building permit
- Design contingency
- Documentation variations

EXTERNAL WORKS

- Concrete paving to exterior areas.
- Allowance for minimal planters/trees.
- Curb cuts and driveway entrances.
- Exterior signs.
- Making good existing paving when adjoining.

DEMOLITIONS

- Remove existing adjacent parapets and make good
- Remove existing retaining walls
- Remove parking booth and barrier
- Remove miscellaneous barriers, signs, fences, curbs, paving etc.

SUMMARY AND COMPARISON

SUMMARY AND COMPARISON

BUILDING

	July 21/82 Estimate	Nov. 1/82 Estimate	*Differences
Sub-Grade	\$ 2,202,200	\$ 2,629,674	\$ 427,474
Superstructure Frame	7,555,842	7,516,328	(39,514)
Enclosing and Weatherproofing	4,473,062	4,258,561	(214,501)
Internal Sub-Division	903,710	838,646	(65,064)
Stairs and Conveying Systems	1,781,352	1,824,392	43,040
Internal Finishes	863,666	901,847	38,181
Fittings, Furnishings & Equipment	4,081,575	4,454,415	372,840
Mechanical Systems	6,711,868	7,582,213	870,345
Electrical Systems	3,920,000	3,910,500	(9,500)
Allowances	3,350,110	2,624,800	(725,310)
General Site Expenses, O & P	3,665,882	3,737,269	71,387
Total Building Cost	\$39,509,267	\$40,278,645	\$ 769,378
External Works			
Site Development	185,677	190,677	5,000
Demolitions	55,250	76,000	20,750
Alterations	-	-	-
General Site Expenses, O & P	24,640	27,274	2,634
	\$39,774,834	\$40,572,596	\$ 797,762
Additional Risk Level Storage Space	725,000	Included	(725,000)
Professional Fees			
Specialist Consultant	268,900	268,900	-
Architectural & Engineers	1,846,000	1,846,000	-
Total	\$42,614,734	\$42,687,496	\$ 72,762

*See notes following

NOTES

Sub Grade

- Includes extra storage space in basement, also further basement on north side.

Superstructure Frame

- Updated information and drawings provided for greater accuracy of measurements.

Enclosing and Weatherproofing

- Design development added exterior window wall and skylight.
- Changed Mechanical room configuration and location.
- Revised prices include measurement for sloping recess at perimeter mid-point, omitting original global allowance.

Interior Sub Division

- Revised layouts, reduced amount of solid partitions.
- Increase in exterior doors and screens.

Stairs and Conveying Systems

- Extra stairs in mechanical rooms and exiting areas.

Internal Finishes

- Increase reflects extra floor and ceiling in basement and allowance for sprayed acoustic insulation.

Fittings Furnishings and Equipment

- Increase in ceiling price amounts after further discussions with manufacturers.

Mechanical Systems

- Extra Washroom Capacity.
- Increased equipment costs due to splitting up of mechanical rooms.
- Adjusted refrigeration capacity.
- Extra basement to heat and cool.

Electrical Systems

- New lightning protection system.
- Increase in cost for extra basement space.
- These items almost identical to allowances made for miscellaneous items in first estimate.

Allowances

- Design Contingency reduced due to design evolution.
- Allowance for additional mechanical space omitted and spread across applicable elements.
- Allowance for removable insulated floor reduced.
- Increase directly proportional to construction costs.

General Site Expenses Overhead
and Profit

External Works

- Minimal Changes.

Demolitions

- New hand rail on adjacent site to south will have to be demolished.

Alterations

- Nil

General Site Expenses

- Increases directly proportional to External Works Cost Estimate.

Additional Risk Level Storage
Space

- Measured and priced in the appropriate Elements.

Professional Fees

- No Changes.

DETAILED COST ANALYSIS

Gross Floor Area
422,449 S.F.

Building Cost Index
Region Material Labour Comp

Tender Date
Anticipated: Apr. 83
Actual

Job Title:
Hamilton Trade Centre and Arena

01 November 1982

SUMMARY OF ELEMENT COSTS 1

Element	Element Quantity	Elem. Unit	Element Unit Rate \$	Element Total Cost \$	Group Element Total Cost \$	Element Cost per S.F. Gross Floor Area \$	Group Element Cost per S.F. Gross Floor Area \$	Elem. Cost as % of Total Bldg. Cost %	Group Elem. Cost as % of Total Bldg. Cost %
BUILDING									
1.0 Sub-Grade									
1.1 Excavation	113,168	CY	8.22	931,094		2.20		2.31	
1.2 Dewatering	-	SUM	-	30,000		0.07		0.07	
1.3 Standard Strip Footings	5,297	LF	10.04	53,175		0.13		0.14	
1.4 Standard Column Footings	18	EACH	284.72	5,125		0.01		0.01	
1.5 Special Foundations	-	-	-	570,769		1.35		1.41	
1.6 Walls Below Slab on Grade	4,028	SF	11.12	44,811		0.11		0.11	
1.7 Walls Above Slab on Grade (basement walls)	17,487	SF	16.52	288,993		0.68		0.72	
1.8 Slab on Grade	174,471	SF	4.04	705,707		1.67		1.75	
Group Element Total					2,629,674		6.22		6.52
2.0 Superstructure Frame									
2.1 Floor Frame and Seating Deck	280,583	SF	16.90	4,743,560		11.23		11.78	
2.2 Roof Frame	195,771	SF	14.16	2,772,768		6.56		6.88	
Group Element Total					7,516,328		17.79		18.66
3.0 Enclosing and Weatherproofing									
3.1 Roof Covering	193,723	SF	5.08	983,421		2.33		2.44	
3.2 External Walls	102,873	SF	27.80	2,859,442		6.77		7.10	
3.3 External Doors and Screens	1,127	SF	120.43	135,729		0.32		0.34	
3.4 External Windows	4,630	SF	22.00	101,860		0.24		0.25	
3.5 Balconies and Projections	-	SF	-	-		-		-	
3.6 External Soffits	29,307	SF	6.07	178,109		0.42		0.44	
Group Element Total					4,258,561		10.08		10.57
Totals Carried Forward					14,404,563		34.09		35.75

Gross Floor Area
422,440 S.F.

Building Cost Index		
Program	Material	Labour Comp.

Tender Date
Anticipated: Apr. 83
Actual :

Job Title:
Hamilton Trade
Centre and Arena

01 November 1982

SUMMARY OF ELEMENT COSTS 2

Element	Element Quantity	Elem. Unit	Element Unit Rate \$	Element Total Cost \$	Group Element Total Cost \$	Element Cost per S.F. Gross Floor Area \$	Group Element Cost per S.F. Gross Floor Area \$	Element Cost as % of Total Bldg. Cost %	Group Element Cost as % of Total Bldg. Cost %
Totals Brought Forward					14,404,563		34.09		35.75
4.0 Internal Sub-Division									
4.1 Solid Partitions	131,733	Sf	4.38	577,811		1.37		1.45	
4.2 Framed Partitions	13,350	Sf	0.59	7,840		0.02		0.02	
4.3 Movable Partitions	-	Sf	-	-		-		-	
4.4 Internal Doors	228	EACH	525.20	119,745		0.28		0.29	
4.5 Internal Screens	2,706	Sf	49.24	133,250		0.32		0.33	
Group Element Total					838,646		1.99		2.09
5.0 Stairs and Conveying Systems									
5.1 Stairs	-	LF	-	316,349		0.75		0.79	
5.2 Elevators	-	SUM	-	155,000		0.37		0.39	
5.3 Escalators	-	SUM	-	1,000,000		2.37		2.48	
5.4 Specials	-	-	-	353,043		0.83		0.87	
Group Element Total					1,824,392		4.32		4.53
6.0 Internal Finishes									
6.1 Floor Finishes	397,661	Sf	0.81	322,890		0.76		0.80	
6.2 Ceiling Finishes	588,351	Sf	0.49	285,956		0.68		0.71	
6.3 Wall Finishes	322,755	Sf	0.91	293,001		0.69		0.72	
Group Element Total					901,847		2.13		2.23
Totals Carried Forward					17,969,448		42.53		44.60

Gross Floor Area
422,449 S.F.

Building Cost Index		
Region	Material	Labour Comp

Tender Date
Anticipated: Apr. 83
Actual :

Job Title:
Hamilton Trade
Centre and Arena

01 November 1982

SUMMARY OF ELEMENT COSTS 3

Element	Element Quantity	Elem. Unit	Element Unit Rate \$	Element Total Cost \$	Group Element Total Cost \$	Element Cost per S.F. Gross Floor Area \$	Group Element Cost per S.F. Gross Floor Area \$	Elem. Cost as % of Total Bldg Cost %	Group Element Cost as % of Total Bldg Cost %
Totals Brought Forward					17,969,448	42.53			44.60
7.0 Fittings, Furnishings and Equipment				442,045		1.05		1.11	
7.1 Fittings and Furnishings		SUM		4,012,370		9.50		9.96	
7.2 Equipment		SUM							
Group Element Total					4,454,415	10.55			11.07
8.0 Mechanical Systems									
8.1 Plumbing		-		1,183,128		2.80		2.94	
8.2 Fire Protection		-		682,759		1.62		1.70	
8.3 Power or Heat Generation		-		682,531		1.62		1.70	
8.4 Refrigeration		-		504,830		1.19		1.24	
8.5 Liquid Heat Transfer		-		2,484,071		5.88		6.18	
8.6 Air Distribution		-		1,476,023		3.49		3.65	
8.7 Controls and Instrumentation		-		568,871		1.35		1.42	
Group Element Total					7,582,213	17.95		18.83	
9.0 Electrical Systems									
9.1 Power Generation		-	)	1,800,500		4.28		4.47	
9.2 Service and Distribution		-	)						
9.3 Lighting		-		1,434,000		3.39		3.56	
9.4 Special Systems		-		550,000		1.30		1.36	
9.5 Communications		-		76,000		0.18		0.19	
9.6 Heating and Cooling		-		50,000		0.12		0.12	
9.7 Controls and Instrumentation		-		Incl.		-		-	
Group Element Total					3,910,500	9.25		9.70	
Totals Carried Forward					33,916,578	80.28			84.20

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SUMMARY OF ELEMENT COSTS 4

Element	Element Quantity	Elem. Unit	Element Unit Rate \$	Element Total Cost \$	Group Element Total Cost \$	Element Cost per S.F. Gross Floor Area \$	Group Element Cost per S.F. Gross Floor Area \$	Elem. Cost as % of Total Bldg. Cost %	Group Elem. Cost as % of Total Bldg. Cost %
Totals Brought Forward					33,916,576		80.28		84.20
10.0 Allowances									
10.1 Finished Hardware	-	SIM	-	134,800		0.32		0.33	
10.2 Other Allowances	-	-	-	865,000		2.05		2.15	
10.3 Design Contingency	-	-	-	1,625,000		3.85		4.04	
10.4 Escalation Contingency	-	-	-	-		-		-	
Group Element Total					2,624,800		6.22		6.52
11.0 General Site Expenses. Overhead and Profit									
					36,541,376				
11.1 General Site Expenses	-	-	-	2,375,189		5.62		5.90	
11.2 Overhead and Profit	-	-	-	1,362,080		3.22		3.38	
Group Element Total					3,737,269		8.85		9.28
TOTAL BUILDING COST									100.00
Totals Carried Forward					40,278,645		95.35		

Gross Floor Area
422,449 S.F.

Building Cost Index		
Region	Material	Labour Comp.

Tender Date
Anticipated: Apr. 83
Actual:

Job Title:
Hamilton Trade
Centre and Arena

01 November 1982

SUMMARY OF ELEMENT COSTS 5

Element	Element Quantity	Elem. Unit	Element Unit Rate \$	Element Total Cost \$	Group Element Total Cost \$	Element Cost per S.F. Gross Floor Area \$	Group Elem. Cost per S.F. Gross Floor Area \$	Elem. Cost as % of Total Bldg Cost %	Group Elem. Cost as % of Total Bldg Cost %
Totals Brought Forward					40,278,645	95.35			
EXTERNAL WORKS									
12.0 Site Development	-	-	-	190,677		0.45			
12.1 General Site Development				Incl.					
12.2 Special Site Development									
12.3 Mechanical Systems									
12.3.1 Water Supply and Treatment									
12.3.2 Waste Water Disposal and Treatment									
12.4 Electrical Systems									
12.4.1 Power Generation									
12.4.2 Power Transmission									
12.4.3 Service and Distribution									
12.4.4 Lighting									
12.4.5 Heating and Cooling									
Group Element Total					190,677	0.45			
13.0 Demolitions	-	-	-	76,000		0.18			
13.1 Wrecking									
13.2 Special Demolition									
Group Element Total					76,000	0.18			
Totals Carried Forward					40,545,322	95.98			

Gross Floor Area	Building Cost Index			Tender Date	Job Title:
422,449 S.F.	Region	Material	Labour	Anticipated: Apr. 83	Hamilton Trade
				Actual	Centre and Arena
					01 November 1982

SUMMARY OF ELEMENT COSTS 6

Element	Element Quantity	Elem. Unit	Element Unit Rate \$	Element Total Cost \$	Group Element Total Cost \$	Element Cost per S.F. Gross Floor Area \$	Group Elem. Cost per S.F. Gross Floor Area \$	Elem. Cost as % of Total Bldg. Cost %	Group Elem. Cost as % of Total Bldg. Cost %
Totals Carried Forward					40,545,322		95.98		
14.0 Alterations									
14.1 Permanent	-	-							
14.2 Temporary	-	-							
Group Element Total									
15.0 General Site Expenses, Overhead and Profit on External Works									
15.1 General Site Expenses	-	-	-	17,334		0.04			
15.2 Overhead and Profit	-	-	-	9,940		0.02			
Group Element Total					27,274		0.06		
TOTAL BUILDING & EXTERNAL WORKS COST					40,572,596		96.04		
16.0 Contingencies									
16.1 Post Contract Contingency	-	-							
16.2 Escalation Contingency	-	-							
Group Element Total									
TOTAL BUILDING AND EXTERNAL WORK COST INCLUDING CONTINGENCIES					40,572,596		96.04		

ITEMIZED ESTIMATE

1.0 SUB GRADE

1.1 Excavation

			\$	\$
Site Clearance grub up trees, posts, etc.	S.F.	168,426	0.05	8,421
Excavate to form basement and truck away	C.Y.	111,938	7.00	783,566
Excavate below basement for trench to strip footing	C.Y.	329	12.50	4,112
Hand trimming	ITEM			5,000
Excavate miscellaneous pits	ITEM			2,000
Granular backfill to perimeter walls	C.Y.	2,500	13.50	33,750
Weeping tile including stone surround and filter material	L.F.	8,618	4.00	34,472
Allow for breaking out existing foundations met with during excavation	ITEM			35,000
Allow for forming ramp to basement excavation and remove on completion	ITEM			5,000
Excavate below basement for column bases and truck away	C.Y.	901	9.00	8,109
Granular backfill to caisson caps and bases	C.Y.	864	13.50	11,664
		TO SUMMARY		\$931,094

1.0 SUB GRADE Continued

1.2 Dewatering

Allow for keeping excavation free from water			\$	\$
	ITEM			<u>30,000</u>
	TO SUMMARY			<u>\$30,000</u>

1.3 Standard Strip Footings

20 Mpa concrete in strip footings	C.Y.	232	66.00	15,312
Formwork to footings	S.F	7,098	2.90	20,584
Reinforcement in footings	TON	8	750.00	6,000
20 Mpa concrete in tunnel footing	C.Y.	30	66.00	1,980
Formwork to tunnel footing	S.F.	965	2.90	2,799
Reinforcement to tunnel footing.	TON	2	750.00	1,500
Allowance for miscellaneous items (i.e. waterstops, keys, etc.)				
	ITEM			<u>5,000</u>
	TO SUMMARY			<u>\$53,175</u>

1.0 SUB GRADE Continued

1.4 Standard Column Footings

20 Mpa concrete in column bases			\$	\$
Forms to column bases				
Reinforcement				
20 Mpa concrete in column caps				
Formwork to caps				
Reinforcement				
	C.Y.	28	66.00	1,846
	S.F.	504	3.00	1,512
	TON	1	750.00	750
	C.Y.	3	70.00	210
	S.F.	144	3.00	432
	TON	.5	750.00	375
		To SUMMARY		\$5,125

1.5 Special Foundations

Underpinning to existing foundation walls to north and west sides of adjacent properties	S.F.	1,624	30.00	48,720
Piling and lagging to sides of excavation (partial, north side)	S.F.	13,498	12.50	168,725
20 Mpa concrete in caissons 30" diameter including removing casing	L.F.	5,500	30.00	165,000
		C/f		\$382,445

1.0 SUB GRADE Continued

1.5 Special Foundations (Continued)

			\$	\$
			B/f	382,445
20 Mpa ditto 36" diameter	L.F.	1,980	35.00	69,300
Extra for forming bells	NO	110	650.00	71,500
30 Mpa concrete in caissons caps.	C.Y.	117	74.00	8,658
Forms to sides of caps.	S.F.	4,728	3.25	15,366
Reinforcement in caisson caps.	TON	18	750.00	13,500
Allowance for transporting equipment to site, set up and removal.	ITEM			10,000
	To SUMMARY			\$570,769

1.6 Walls Below Slab on Grade

20 Mpa Concrete in walls	C.Y.	157	70.00	10,990
Formwork to ditto	S.F.	8,056	3.50	28,196
Reinforcement to walls	TON	7.5	750.00	5,625
	To SUMMARY			\$44,811

1.0 SUB GRADE (Continued)

1.7 Walls Above Slab on Grade

			\$	\$
20 Mpa concrete in walls next sidewalks on York and Bay Street	C.Y.	548	70.00	38,360
Formwork to face of wall formed one side with one face next shoring.	S.F.	12,704	6.00	76,224
Sheathing to face of perimeter shoring.	S.F.	12,704	1.00	12,704
Allow for vertical rubble drains to outer face of exterior wall.	ITEM			12,000
20 Mpa concrete in wall to East ramp and escape corridor.	C.Y.	205	70.00	14,350
Forms to face of wall formed on both faces.	S.F.	9,567	3.50	33,485
Reinforcement in walls.	TON	35	750.00	26,250
Waterproofing foundation walls complete with protection board.	S.F.	18,656	3.00	55,968
Rigid insulation to foundation walls.	S.F.	7,056	0.75	5,292
20 Mpa concrete in thickening under masonry wythe.	C.Y.	62	70.00	4,340
Extra formwork.	S.F.	3,340	3.00	10,020
		TO SUMMARY		\$288,993

1.0 SUB GRADE (Continued)

1.8 Slab on Grade

		\$	\$
25 Mpa concrete in ramp slab on grade 8" thick including 6" bed of gravel, 3" bed of crushed stone and vapour barrier.	S.F.	21,364	2.26
			48,283
25 MPa concrete in sidewalk (next ramp) 6" thick on 6" crushed stone underbed.	S.F.	1,266	1.66
			2,102
Screed and cure slab	S.F.	23,555	0.07
			1,649
Traffic topping	S.F.	22,284	3.50
			77,994
Wood float finish on sidewalk including dummy joints, expansion joints and forms.	S.F.	1,266	0.70
			886
Extra for heated ramp slab where exposed to exterior - insulation etc.	S.F.	7,280	1.50
			10,920
Reinforcement in ramp slab.	TON	47	750.00
			35,250
6 x 6 x 6/6 Welded wire mesh in sidewalks next ramp.	S.F.	1,392	0.26
			362
Expansion joints.	L.F.	1,760	0.70
			1,232
Walls and steps to loading dock	ITEM		4,000
		C/f	\$182,678

1.0 SUB GRADE (Continued)

1.8 Slab on Grade (Continued)

		\$	\$
		B/f	182,678
25 Mpa concrete in slab on grade 5" thick on 6" bed of crushed stone, 2" sand bed and 6 mil polyethelene vapour barrier	S.F. 130,296	1.63	212,382
Screed and cure slab.	S.F. 130,296	0.07	9,120
Expansion joints, control joints etc.	L.F. 13,000	0.50	6,500
Bulkhead formwork.	ITEM		5,000
Sump pits.	ITEM		20,000
Header trench for refrigeration piping.	ITEM		15,000
Valve and miscellaneous pits.	ITEM		5,000
Extra for forming whirlpools.	ITEM		10,000
Excavate trench for and part return and backfill around mechanical and electrical pipes.	L.F. 3,000	10.00	30,000
Reinforcement in slab on grade.	TON 69	750.00	51,750
		C/f	\$547,430

1.0 SUB GRADE (Continued)

1.8 Slab on Grade (Continued)

			\$	\$
		B/f		547,430
25 Mpa Concrete in slab on grade to rink, placed in continuous pour in panels as specified.	C.Y.	299	100.00	29,900
Ditto in curbs	C.Y.	12	100.00	1,200
Formwork to curbs	S.F.	1,102	5.50	6,061
Reinforcement to rink slab and curb.	TON	13	750.00	9,750
Special curing to rink slab.	S.F.	21,545	0.20	4,309
High density (60 p.s.i.) styrofoam insulation 4" thick to underside of slab	S.F.	24,272	2.70	65,534
Bed of sand under rink 8" thick (695 c.yd.).	S.F.	22,406	0.65	14,563
Bed of crushed stone under rink 1'1" minimum thickness	C.Y.	1,685	16.00	26,960
		TO SUMMARY		\$705,707

2.0 SUPERSTRUCTURE FRAME

2.1 Floor Frame and Seating Deck

Street Level			\$	\$
30 Mpa concrete in suspended floor slab, beams and columns.	C.Y.	4,195	74.00	310,430
Formwork to soffit of concrete slab, beams and columns.	S.F.	144,142	3.25	468,461
Reinforcement in structural slab, beams and columns.	TON	355	750.00	266,250
Rough screed and cure.	S.F.	102,959	0.07	7,207
<u>Concourse Level</u>				
30 Mpa concrete in suspended floor slab, beams and columns.	C.Y.	224,242	74.00	220,520
Formwork to soffit of concrete slab, beams and columns.	S.F.	225,071	3.25	332,845
Reinforcement in structural slab, beams and columns.	TON	19,836	750.00	189,000
Rough screed and cure.	S.F.	73,153	0.07	5,121
			C/f	1,799,834

2.0 SUPERSTRUCTURE FRAME
(continued)

2.1 Floor Frame and Seating Deck (Continued)

				\$	\$
				B/f	1,799,834
<u>Mezzanine Level and Towers</u>					
30 MPa concrete in suspended floor slab, beams and columns.	C.Y.	425	74.00		31,450
Formwork to soffit of concrete slab beams and columns.	S.F.	14,874	3.25		48,340
Reinforcement in structural slab, beams and columns.	TON	40	750.00		30,000
Rough screed and cure.					
Allow for expansion joints.	S.F.	11,712	0.07		820
		Item			100,000
Allow for cranes and hoists for placing concrete.		Item			40,902
Allowance for floating floor for mechanical room acoustic isolation.		Item			25,000
Formwork to openings in slab.		Item			10,000
				C/f	2,086,346

2.0 SUPERSTRUCTURE FRAME
(continued)

2.1 Roof Frame and Seating Deck (Continued)

			\$	\$
			B/f	2,086,346
<u>Upper Level Seating Deck</u>				
30 Mpa concrete in tiered stand seating deck including columns and beams.	C.Y.	2,452	75.00	183,900
Formwork to stepped soffit of seating deck including face of risers, beams, studs and columns.	S.F.	150,696	6.75	1,017,198
Reinforcement in tiered stand seating deck, columns and beams.	TON	135	750.00	101,250
Allow for expansion and construction joints, temporary screeds and the like.	S.F.	53,820	1.00	53,820
Allow for seal and cure (See Element 6).	-	-	-	-
30 Mpa concrete in upstand beam including reinforcement and formwork (6" thick).	S.F.	1,218	11.00	13,398
Ditto curved on plan.	S.F.	1,802	13.50	24,327
			C/f	3,480,239

2.0 SUPERSTRUCTURE FRAME
(continued)

2.1 Floor Frame and Seating Deck (Continued)

			\$	\$
			B/f	3,480,239
<u>Lower Level Seating Deck</u>				
30 MPa concrete in tiered stand seating deck including columns and beams.	C.Y.	1,774	75.00	133,050
Formwork to stepped soffit of seating deck, including face of risers, beams and columns.	S.F.	109,029	6.75	735,946
Reinforcement in tiered stand seating deck columns and beams.	TON	97	750.00	72,750
Allow for expansion joints, construction joints, temporary screeds and the like.	S.F.	39,299	1.00	39,299
Allow for seal and cure. (See Element 6).	-	-	-	-
30 MPa concrete in upstand beam to front of tiered seating including reinforcement and formwork.	S.F.	1,218	11.00	13,398
Ditto but curved on plan.	S.F.	1,361	13.50	18,374
			C/f	4,493,056

2.0 SUPERSTRUCTURE FRAME
(Continued)

2.1 Floor Frame and Seating Deck (Continued)

			\$	\$
			B/f	4,493,056
<u>Stair Enclosure Walls (Street Level)</u>				
25 Mpa concrete in walls.	C.Y.	60	74.00	4,440
Forms to walls.	S.F.	4,800	3.25	15,600
Reinforcement in walls.	TON	4.8	750.00	3,600
25 Mpa concrete in walls.	C.Y.	115	74.00	8,510
Forms to walls.	S.F.	12,384	3.25	40,248
Reinforcement in walls.	TON	13	750.00	9,750
Allowance for dressing up stair enclosure walls.	Item			15,000
Allow for cranes and hoists for placing concrete.	Item			25,356
Allowance for forming openings for ducts and pipes, etc.	Item			15,000
Allow for bases to pumps and equipment.	Item			10,000
Allow for shoring and reshoring slabs as required.	Item			100,000
Formwork to edge of tiered stands.	Item			3,000
			To Summary	4,743,560

2.0 SUPERSTRUCTURE FRAME
(Continued)

2.2 Roof Frame

Main Roof

Structural steel in joists and trusses to Arena roof including connections. Total weight approximately 495 Ton (Weight and price supplied by Canron).

Allowance for cranes.

22 Gauge x 3" galvanized steel acoustic roof deck equal to Westeel-Rosco T-30-6A.

Cutting and waste on steel deck at curved perimeter.

30 MPa concrete in roof columns.

Sonotube forms to 24" diameter columns.

Reinforcement in columns.

Teflon coated bearing pads and anchor bolts to roof truss supports (included in steel price).

		\$	\$
Item			
			1,600,000
S.F.	107,770	2.62	282,357
Incl.			
L.F.	841	9.00	7,569
C.Y.	67	74.00	4,958
L.F.	576	10.00	5,760
TON	6	750.00	4,500
			Incl.
To Summary			1,905,144

2.0 SUPERSTRUCTURE FRAME
(Continued)

2.2 Roof Frame (Continued)		\$	\$
<u>Tower Roofs</u>		B/f	1,905,144
Structural slab to roof deck over towers.	S.F. 5,568	5.00	27,840
<u>Roof Over Concourse Level</u>			
30 MPa concrete in roof slab, beams and columns.	C.Y. 1,476	74.00	109,224
Ditto in vertical plane of stepped roof at North Vestibule.	C.Y. 64	74.00	4,736
Forms to soffit of roof slab, beams and columns.	S.F. 53,154	3.25	172,750
Ditto to vertical plane of stepped roof.	S.F. 5,184	3.25	16,848
Reinforcement in roof slab, beams and columns.	TON 120	750.00	90,000
Rough screed and cure.	S.F. 39,084	0.07	2,736
Expansion joints and the like.	Item		10,000
Allowance for sloping roof from concourse roof level to underside of seating deck.	S.F. 22,402	10.00	224,020
Allow for roof deck at street level over Rink and Exhibition Hall level.	S.F. 20,947	10.00	209,470
To Summary			2,772,768

3.0 ENCLOSING AND WEATHERPROOFING

3.1 Roof Covering

		\$	\$
Membrane roofing comprising 1/2" gypsum board on metal deck with vapour barrier 2 1/2" rigid insulation and EPDM membrane fastened.	S.F. 107,270	4.75	509,533
I.R.M.A. roof covering comprising of four ply membrane on primed concrete deck, 2" roofmate insulation with gravel topping applied at rate of 1500 lb/sq.	S.F. 43,978	3.00	131,934
Roofing to sloping perimeter recess.	S.F. 21,528	7.25	156,078
Parapet flashing to arena roof	L.F. 1,196	9.00	10,764
Parapet flashing to other roofs.	L.F. 2,068	9.00	18,612
Flashing at junction of flat roof with sloping recess.	L.F. 1,196	7.50	8,970
Upstand flashing.	L.F. 542	7.00	3,794
2'0" x 2'0" Precast concrete pavers set on roof at perimeter	S.F. 6,992	2.00	13,984
Double glazed insulated aluminum framed skylight and window wall over ticket office size 80'0" x 20'0" on plan including flashings.	ITEM		80,000
Allowance for flashings to roof penetrations, pipes, etc.	ITEM		8,000
Roof hatches	ITEM		3,000
Waterproofing to Podium slab at grade	S.F. 20,947	1.85	38,752
	TO SUMMARY		<u>\$983,421</u>

3.0 ENCLOSING AND
WEATHERPROOFING
(Continued)

3.2 External Walls

		\$	\$
8" Block wall to form plenum to mechanical rooms.	S.F. 17,440	4.25	74,120
Prefinished metal cladding complete with R12 insulation and liner sheet fastened to steel girts	S.F. 39,945	21.00	838,845
Ditto but fastened to steel girts and 8" concrete block wall	S.F. 24,948	21.00	523,908
Structural steel in framing and supports to perimeter cladding.	TON 82-1/2	2,000.00	165,000
Prefinished metal cladding to exposed columns at recess including insulation.	S.F. 4,618	25.00	115,450
Allow for curved cladding and insulation to exterior exposed concrete columns.	S.F. 2,168	23.00	49,864
Prefinished steel formed and fastened to underside of stepped recess including insulation and paint sealer.	S.F. 25,960	16.00	415,360
Rainscreen wall comprising precast concrete wall panels, air space, 2" cavity wall insulation and 8" concrete block.	S.F. 5,234	23.35	<u>122,214</u>
	C/f		2,304,761

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3.0 ENCLOSING AND
WEATHERPROOFING
(Continued)

3.2 External Walls (Continued)

			\$	\$
			B/f	2,304,761
Allowance for forming parapet detail to Arena and Mechanical Room roofs.	L.F.	1,450	100.00	145,000
Allowance for forming parapet detail to lower roofs.	L.F.	1,178	40.00	47,120
Exterior concrete wall to entrance ramp from Bay Street approximately 14" thick including formwork and reinforcement, 2" rigid insulation and 6" block face tied back.	S.F.	4,848	17.00	82,416
Form exterior kerb detail to base of glazed window wall	L.F.	463	15.00	6,945
Allowance for detail to bulkhead over north concourse entrance and canopy cover.	S.F.	580	40.00	23,200
Allowance for louvres to mechanical rooms.	S.F.	2,000	25.00	50,000
Allow for chimney stack to match building height approx. 80'-0".	ITEM			200,000
	TO SUMMARY			\$2,859,442

3.0 ENCLOSING AND WEATHERPROOFING (Continued)

3.3 External Doors and Screens

			\$	\$
Electrically operated steel overhead door size 12'0" x 15'0" complete with frame	NO	4	4,500.00	18,000
Ditto, but size 18'0" x 14'0"	NO	1	6,000.00	6,000
Ditto, but size 18'0" x 14'0"	NO	1	4,000.00	4,000
Ditto, but size 8'0" x 10'0"	NO	10	2,500.00	25,000
Hollow metal doors and frames including paint finish.	NO	89	300.00	26,700
Pair ditto.	NO	4	570.00	2,280
Fire rated exterior quality hollow metal door and frame including decoration.	NO.	4	320.00	1,280
Georgian wired glazed hollow metal exterior quality doors, and frames including decoration.	NO.	51	425.00	21,675
Glazed aluminum screen	S.F.	1,127	22.00	24,794
Extra for glazed aluminum doors and hardware	NO.	24	250.00	6,000
		TO SUMMARY		\$135,729
3.4 External Windows				
Anodized aluminum windows with clear, tempered, thermoseal glazing and thermally broken frame.	S.F.	540	25.00	13,500
		TO SUMMARY		13,500

3.0 ENCLOSING AND
WEATHERPROOFING
(Continued)

3.4 External Windows	\$	\$
Double glazed aluminum thermally broken windows to Restaurant and Retail Areas.		
S.F. 4,630	22.00	<u>101,860</u>
TO SUMMARY		\$101,860

3.5 External Soffits

Exterior quality metal linear suspended ceiling with drywall and insulation above.	S.F. 6,937	12.50	86,712
Allowance for bulkheads.	ITEM		5,000
Ditto to storefronts.	L.F. 463	17.50	8,102
2" Rigid insulation mechanically fastened to underside of suspended floor slab.	S.F. 22,370	3.50	<u>78,295</u>
TO SUMMARY			\$178,109

4.0 INTERIOR SUB-DIVISION					
4.1 Solid Partitions				\$	\$
8" Block partition.		S.F.	54,450	4.25	231,412
6" Block partition.		S.F.	49,575	4.15	205,736
4" Concrete block with 2" rigid insulation tied to concrete wall.		S.F.	2,672	5.15	13,761
4" Concrete block to top perimeter of Mezzanine seating.		S.F.	20,300	4.00	81,200
Cavity wall comprising 12" block, air space, 2" insulation and 4" block.		S.F.	4,736	9.65	45,702
		TO SUMMARY			\$577,811
4.2 Framed Partitions					
3 5/8" Metal studs in partitions (drywall measured with wall finishes)		S.F.	13,350	0.40	5,340
Partitions to lighting control booth.		ITEM			2,500
		TO SUMMARY			7,840
4.3 Movable Partitions					
Not applicable		-	-	-	-

4.0 INTERIOR SUB-DIVISION
(Continued)

4.4 Internal Doors				\$	\$
Solid core hollow metal doors, frames and decoration	No	142	285.00		40,470
Ditto but glazed.	No	26	400.00		10,400
Pair Ditto but glazed	No	31	750.00		23,250
Darkroom doors, frames, seals and decoration	No	4	500.00		2,000
Roller shutter door to Ticket Office size 30'0" x 6'0"	No	1	4500.00		4,500
Rolling grill to concessions	No	10	3000.00		30,000
Fire rated hollow metal doors, frames and decoration.	No	9	500.00		4,500
Pair ditto	No	5	925.00		4,625
4.5 Interior Screens				To Summary	\$119,745
Metal toilet partitions (public).	No	190	300.00		57,000
Toilet partitions(locker rooms).	No	12	300.00		3,600
Glazed hollow metal screen.	S.F.	966	25.00		24,150
Extra for glazed doors.	No	4	250.00		1,000
Glazed metal screens to provide boxes including opening casements with laminated glass.	S.F.	1740	25.00		43,500
Glazed screen to Press Box	ITEM				4,000
				To Summary	133,250

5.0 STAIRS AND CONVEYING
SYSTEMS

5.1 Stairs

	No.	\$	\$	\$
30 Mpa Concrete in step size 4'3" x 1'3" x 9" including formwork	524	27.50	14,410	
30 Mpa Concrete in two step unit size 4'3" wide x 1'4" x 2'0" overall	576	55.00	31,680	
30 Mpa Concrete in staircase size 17'0" wide x 16'0" rise overall with landing at half point 8'0" long, including all rebar and formwork and handrails	4	11,000.00	44,000	
30 Mpa ditto but 4'6" wide with landing 5'0" wide	1	2100.00	2,100	
30 Mpa Concrete in stair 16'0" wide x 14'9" rise overall with landing at half point 7'0" wide including all rebar and formwork and handrails	5	10,500.00	52,500	
30 Mpa Concrete in concourse steps	C.Y.	275	75.00	20,625
Formwork to sloping soffit of stair	S.F.	4,060	7.50	30,450
Formwork to soffit of landing	S.F.	1,160	2.70	3,132
Formwork to riser 7 1/2" high	L.F.	3,915	1.60	6,264
Reinforcement in concourse stairs	lbs	31,320	0.37	11,588
		c/f		216,749

5.0 STAIRS AND CONVEYING
SYSTEMS
(Continued)

5.1 Stairs (Continued)				\$	\$
		No.		B/f	
30 Mpa concrete in staircase 6'0" wide x 10'0" rise overall in one length including reinforcement and formwork to soffit and risers and pipe handrail both sides.					
		36		2100.00	216,749
					75,600
Stairs to Mechanical Rooms - metal pan 4'0" wide approx. 30'-2" rise overall.					
		4		6000.00	24,000
To Summary					316,349
5.2 Elevators					
Passenger elevator 2500 lbs capacity, speed 150 fpm, 2 openings, total travel of 16'0"					
		1			65,000
Freight Elevator of 15000 lbs capacity, speed 50 fpm, platform size 9'-0" x 20'-0" with 8'-0" clear inside height					
		1			90,000
To Summary					155,000
5.3 Escalators					
Escalator 4'0" wide x 14'9" rise overall					
		4		120,000	480,000
Ditto but 2'8" wide x 16'0" rise					
		4		130,000	520,000
To Summary					1,000,000

5.0 STAIRS AND CONVEYING
SYSTEMS
(Continued)

5.4 Catwalks and Ladders

			\$	\$
Suspended metal catwalk complete with steel supports and handrails, secured to steel roof and trusses, epoxy finish.	ITEM			200,000
Removable barriers and gates at Rink Level.	ITEM			10,000
Miscellaneous ships ladders.	ITEM			5,000
Miscellaneous steel frame supports and steps to mechanical and electrical rooms.	ITEM			12,000
Barrier rails to seating areas, paint finish.	L.F.	4,960	20.00	99,200
Miscellaneous handrails to concessions and other exit and entrance areas.	ITEM			12,000
Handrail to top of concrete upstand beams to front of seating areas.	L.F.	638	10.00	6,380
Ditto curved on plan.	L.F.	677	12.50	8,463
		To Summary		353,043

6.0 INTERNAL FINISHES
(Continued)

6.1 Floor Finishes (Continued)

	\$	\$
	B/f	
Allowance for mats, grilles and sinkings	Item	280,890
Allowance for skate resistant, roll-up mats	Item	12,000
		2,000
Allowance for miscellaneous base	Item	3,000
Allowance for upgrading	Item	25,000
	To Summary	322,890

6.2 Ceiling Finishes

Exposed concrete	S.F.	568,795	0.30	170,639
Exposed, painted, suspended, water-resistant drywall	S.F.	1,686	4.00	6,744
Standard lay-in exposed grid 'T' bar ceiling	S.F.	9,456	1.60	15,130
Concealed grid acoustic tile suspended ceiling	S.F.	3,411	2.25	7,675
	C/f			200,188

6.0 INTERNAL FINISHES

6.1 Floor Finishes

		\$	\$
Non-metallic liquid hardener applied to steel trowelled concrete slab.	S.F.	81,480	0.38
			30,962
Exposed concrete steel trowelled and sealed.	S.F.	180,326	0.25
			45,081
Ditto to treads of stepped seating.	S.F.	92,759	0.90
			83,483
Ditto to risers of stepped seating.	S.F.	55,202	0.30
			16,560
Carpet (\$9.00 sq.yd.) glued to steel trowelled concrete slab.	S.Y.	465	14.00
			6,510
Carpet (\$22.00 sq.yd.) glued to steel trowelled concrete.	S.Y.	282	28.00
			7,896
Carpet (\$30.00 sq.yd.) on underpad to concrete slab.	S.Y.	97	37.00
			3,589
Steel trowel concrete slab for finish by others.	S.F.	13,433	0.20
			2,686
Epoxy finish applied to steel trowelled concrete.	S.F.	5,763	3.50
			20,171
Skate resistant finish applied to steel trowelled concrete.	S.F.	4,592	5.00
			22,960
Waterproof finish and topping to mechanical and electrical rooms.	S.F.	11,712	3.50
			40,992
	C/f		280,890

6.0 INTERNAL FINISHES
(Continued)

6.2 Ceiling Finishes (Continued)

		\$	\$
Metal linear ceiling		B/f	200,188
Allowance for bulkheads	S.F. 5,003	6.00	30,018
	Item		4,000
Paint steel roof trusses with catalyzed epoxy paint	S.F. 75,000	0.69	51,750
	To Summary		285,956

6.3 Wall Finishes

Sprayed acoustic insulation - K13 or similar - 1" thick	S.F. 40,600	.75	30,450
1/2" Drywall laminated to masonry walls	S.F. 3,240	1.40	4,536
1/2" Drywall screwed to metal studs (measured separately)	S.F. 29,502	1.15	33,927
Paint block walls	S.F. 28,550	0.45	12,848
Paint drywall	S.F. 31,756	0.38	12,067
Epoxy paint to masonry walls	S.F. 32,250	1.25	40,312
Fair finish to concrete block	S.F. 188,613	0.10	18,861
Special finishes	Item		15,000
	C/f		168,001

6.0 INTERNAL FINISHES
(Continued)

6.3 Wall Finishes (Continued)

	\$	\$
	B/f	
Graphics allowance	Item	168,001
Acoustic treatment allowance	Item	25,000
Painting mechanical equipment and pipework.	Item	50,000
		10,000
Allowance for upgrading	Item	40,000
	To Summary	293,001

7.0 FITTINGS, FURNISHINGS AND EQUIPMENT

7.1 Fittings and Furnishings

			\$	\$
Washroom accessories	Item			60,000
Sundry shelving	Item			2,500
Interior signs	Item			75,000
Vanity shelf to women's washroom	Item			2,500
Vanities to locker rooms	46	L.F.	50.00	2,300
Counters	77	L.F.	175.00	13,475
Counters to concessions	417	L.F.	200.00	83,400
Bar counter	10	L.F.	300.00	3,000
Metal lockers	Item			7,500
Locker units	414	L.F.	125.00	51,750
Chalkboards, tackboards, etc.	Item			5,000
Benches to locker rooms	414	L.F.	200.00	82,800
Blinds to exterior windows	940	S.F.	3.00	2,820
Wall unit cupboard to ticket area	30	L.F.	200.00	6,000
Press and commentary table/desk unit	Item			3,000
Mobile platform stage	Item			6,000
Furniture	Item			35,000
To Summary				442,045

7.0 FITTINGS, FURNISHINGS AND
EQUIPMENT (Continued)

7.2 Equipment

			\$	\$
Dasher boards, doors, protective glazing including team boards, penalty box, timekeepers box, etc.	Item			125,000
Goal posts, nets and supports	Item			Incl.
Ice-resurfacing machine	No.	1		53,000
Electric scoreboard including fastening to structure	Item			200,000
Safe, including all structural upgrading	Item			10,000
Garbage compactor	Item			20,000
Garbage chute	Item			20,000
Folding seats - removable	No.	2,000	60.00	120,000
Fixed seating units with upholstered finish to seats and backs complete with integral lighting	No.	15,552	120.00	1,866,240
Electrically operated removable seats including support framework	No.	2,548	560.00	1,426,880
Turnstiles	No.	38	1,875.00	71,250
Bar equipment including beer store and ice maker.	Item			25,000
Whirlpools, saunas	Item			75,000
			To Summary	4,012,370

8.0 MECHANICAL SYSTEMS

	\$	\$
8.1 Plumbing	To Summary	1,183,128
8.2 Fire Protection	To Summary	682,759
8.3 Power and Heat Generation	To Summary	682,531
8.4 Refrigeration	To Summary	504,830
8.5 Liquid Heat Transfer	To Summary	2,484,071
8.6 Air Distribution	To Summary	1,476,023
8.7 Controls and Instrumentation	To Summary	568,871

9.0 ELECTRICAL SYSTEMS

9.1 Power Generation		\$	
9.2 Service and Distribution		\$	
9.3 Lighting	To Summary		1,800,500
9.4 Special Systems	To Summary		1,434,000
9.5 Communications	To Summary		550,000
9.6 Heating and Cooling	To Summary		76,000
9.7 Controls and Instrumentation	To Summary		50,000
			Incl.

10.0 ALLOWANCES

10.1 Finished Hardware

	No.	251	\$	\$
To doors including panic bars, closers, hinges, etc.			350.00	87,850
Ditto, but no panic bars	No.	164	250.00	41,000
Ditto, ditto, but no closers	No.	14	175.00	2,450
To windows in private boxes	No.	36	50.00	1,800
Miscellaneous hardware	Item			1,700
		To Summary		134,800

10.2 Other Allowances

Testing and Inspection for:

- Concrete	Item	20,000
- Caissons		7,000
- Steel	Item	10,000
- Roofing	Item	10,000
- Soil Tests	Item	20,000
- Shoring Monitoring	Item	3,000
Documentation variation allowance	Item	250,000
	C/f	320,000

10.0 ALLOWANCES
(Continued)

10.2 Other Allowances (Continued)

	\$	\$
	B/f	
		320,000
Removable insulated multi-purpose floor to cover ice surface (1" homosote or equal including covering boards).	Item	120,000
Fork lift truck and dolly	Item	100,000
Building Permit	Item	325,000
	To Summary	865,000

10.3 Design Contingency

Design Contingency allowance

Item	1,725,000
To Summary	1,725,000

11.0 GENERAL SITE EXPENSES
OVERHEAD AND PROFIT

11.1 General Site Expenses

\$

\$

Allowance based on 6 1/2% of
construction cost \$36,541,376

Item 2,375,189

To Summary 2,375,189

11.2 Overhead and Profit

General Contractor's mark-up for
Overhead and Profit based on
3 1/2% of \$38,916,565.00

Item 1,362,080

To Summary 1,362,080

12.0 SITE DEVELOPMENT

12.1 General Site Development

		\$	\$
Allowance for crossovers	Item		8,000
Allowance for making good exterior paving up to existing	Item		12,000
Planters and plants	Item		20,000
Concrete sidewalk on bed of gravel complete with formwork, rebar joints and finish	S.F. 22,982	1.85	42,517
Concrete curbs and gutters	L.F. 1,020	8.00	8,160
Exterior signs	Item		100,000
	To Summary		190,677

13.0 DEMOLITIONS

13.1 Wrecking

			\$	\$
Pull down existing concrete parapet and handrail above, along west wall of adjacent property and make good.	L.F.	245	50.00	12,250
Ditto but against South wall of adjacent property.	L.F.	415		20 750
Allowance for breaking out and removing miscellaneous signs, barriers and fences on site.	Item			6,000
Break out and remove existing concrete retaining wall with railing above next existing ramp entrance to Mall.	Item			5,000
Remove existing parking booth, control barrier, etc.	Item			2,000
Pull down existing concrete vent shaft and extend in new construction to match existing for extra 15'0" height.	Item			30,000
	To Summary			76,000

14.0 ALTERATIONS

\$ \$

Not applicable

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15.0 G.S.E., O & P ON EXTERNAL
WORKS

15.1 General Site Expense

	\$	\$
Item		17,334
To Summary		<u>17,334</u>

Allowance based on 6 1/2% of
\$266,677

15.2 Overhead and Profit

Item	9,940
To Summary	<u>9,940</u>

Allowance based on 3 1/2% of
\$284,011

16.0 CONTINGENCIES

16.1 Post Contract

\$ \$

Not applicable

- - -

16.2 Escalation

Not applicable

- - -